REMARKS

Claims 1-36 are pending in this application. Claims 1 and 14 are independent claims. By this amendment, claims 1 and 14 are amended. Reconsideration in view of the above amendments and following remarks is respectfully solicited.

I. THE CLAIMS DEFINE PATENTABLE SUBJECT MATTER

The Office Action rejects: **(1)** claims 1-4, 7-16 and 20-36 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,405,435 to Tateishi et al. (hereafter Tateishi) in view of JP 2-152251 to Takagi (hereafter Takagi); **(2)** claims 5, 6, 17, 18 under 35 U.S.C. §103(a) as being unpatentable over Tateishi in view of Takagi and further in view of U.S. Patent No. 5,616,208 to Hideki (hereafter Hideki); and **(3)** claim 19 under 35 U.S.C. §103(a) as being unpatentable over Tateishi in view of Takagi and further in view of U.S. Patent No. 4,582,720 to Yamazaki. These rejections are respectfully traversed.

Applicants respectfully submit that the combination of Tateishi and Takagi fail to teach or suggest each and every feature as set forth in the claimed invention. In particular, the combination of Tateishi and Takagi at least fails to teach or suggest a common first substrate transfer device, provided in the substrate transfer section, for transferring substrates into the plurality of modules, as set forth in independent claims 1 and 14. Furthermore, the combination of Tateishi and Takagi fail to teach or suggest that each of the plurality of modules includes first and second valves and an intermediate chamber, *inter alia*.

Claim 1 recites, *inter alia*, a substrate processing apparatus including a plurality of modules being directly detachably attached to said substrate transfer section. A common first substrate

transfer device provided in the substrate transfer section transfers the substrates into the plurality of modules. Each of the plurality of modules includes a substrate processing chamber and an intermediate chamber provided between the substrate processing chamber and the substrate transfer section. Each plurality of modules also includes a first and second valve capable of establishing hermetic isolation between chambers.

Claim 14 recites, *inter alia*, a substrate processing apparatus including a plurality of modules being directly detachably attached to a substrate transfer section. A common first substrate transfer device provided in the substrate transfer section transfers the substrates into the plurality of modules. Each of the plurality of modules includes a substrate processing chamber and first and second intermediate chambers provided between the substrate processing chamber and the substrate transfer section. Each plurality of modules also includes first, second and third valves capable of establishing hermetic isolation between chambers.

The Office Action asserts that the combination of Tateishi and Takagi discloses the claimed invention. Applicants respectfully disagree with this assertion.

For example, the Office Action asserts that Tateishi discloses the claimed substrate transfer section as item 52 or 53 in Fig. 4 and at column 5, lines 40-55. Further, the Office Action asserts that the claimed plurality of modules is disclosed as items 52-55 in Fig. 4 of Tateishi. (see Office Action, sections i. and ii., page 2).

Applicants respectfully submit that the Examiner's interpretation of Tateishi with reference to the claimed invention is erroneous. First of all, the Examiner is improperly giving multiple labels to the same item, e.g., the Examiner states that

item 52 is the transfer section and is also one of the plurality of modules. Item 52 or 53 cannot be both the claimed transfer section and a claimed module. Secondly, the Examiner has failed to show how the plurality of modules 52-55 is directly detachably attached to the transfer section 52 or 53, as set forth in the claims.

The Office Action also asserts that the claimed first substrate transfer device is embodied by Tateishi's item 62 of Fig.4 and is capable of transferring a substrate within the module. (see Office Action, sections iii. and iv., page 2-3). However, applicants respectfully point out that this is not what is claimed. What is claimed is a common first substrate transfer device provided in the transfer section for transferring the substrates into the plurality of modules. Each module 52-55 in Tateishi contains its own cassette elevator 62, 67, 74, 83 etc. for placing the base plates on the shelves of the cassette. In other words, each elevator is only capable of transferring a base plate to at most one module adjacent thereto. Tateishi fails to disclose a common substrate transfer device provided in the transfer section for transferring substrates into a plurality of modules.

Furthermore, applicants respectfully submit that the Office Action has failed to show where Tateishi discloses each module comprising a processing chamber, and an intermediate chamber provided between the processing chamber and the transfer section, as set forth in claim 1. In addition, the Office Action has failed to show where Tateishi discloses each module comprising a processing chamber and a first and second intermediate chambers provided between the processing chamber and the transfer section, as set forth in claim 14.

The Office Action merely states that items 52-55 represent the plurality of modules, however, these individual modules 52-55 are

not each made up of the components as noted above. At most, all of the modules 52-55 combined of Tateishi would have all of the components of one module of the claimed invention. Thus, even if all of the modules 52-55 combined could represent one of the claimed module, Tateishi would still fail to disclose a plurality of such modules.

Furthermore, the flow of processing in the Tateishi device only flows in one direction, i.e., from the first outside storing means 50 to the second outside storing means 59 in a U-shape direction. Thus, Tateishi fails to teach or suggest modules piled up in a substantially vertical direction such that the plurality of modules are capable of being attached to and detached from a wall of the transfer section, as set forth in the claimed invention. The Examiner has conceded this point.

In an attempt to make up for the deficiencies found in Tateishi, the Office Action tries to import the teachings of Takagi. However, applicants respectfully submit that Takagi, like Tateishi, fails to teach or suggest each and every feature as set forth in the claimed invention.

For example, like Tateishi, Takagi fails to disclose a common first substrate transfer device provided in the substrate transfer section for transferring substrates into the plurality of modules. The Office Action contends that item 11 of Takagi provides for an elevator capable of vertically moving a first substrate transfer means 14. However, applicants respectfully point out to the Examiner that transfer means 14 is not a common transfer means between a plurality of modules because each module 2 has its own transfer means 14. (see Takagi, page 8, lines 9-11; and Fig. 1). Only the cassette elevator 11 is common to all modules 2.

Furthermore, Takagi, like Tateishi, fails to disclose a plurality of modules each having the components as set forth in the claims. For example, the modules 2 of Takagi fail to have at least one intermediate chamber between the processing chamber and the transfer section, as set forth in the claimed invention.

Applicants also respectfully submit that the combination of Tateishi and Takagi fail to teach or suggest each and every features as set forth in the claimed invention, for at least the reasons noted above.

To establish a *prima facie* case of Obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 706.02(j).

Applicants respectfully submit that not only does the combined references fail to teach or suggest each and every feature as set forth in the claimed invention, but that one of ordinary skill in the art would not have been motivated to combine/modify the teachings of Tateishi because there is no teaching or suggestion in any of the references regarding how one would modify such systems to arrive at the claimed invention. Tateishi's system is configured as an U-shape device utilizing conveyor belts and multiple elevators, whereas Takagi uses a common elevator and multiple

robots. Applicants respectfully submit that the Examiner has failed to show how the Tateishi system could be modified to have the vertical configuration of Takagi when conveyor belts are being used.

Applicants respectfully submit that independent claims 1 and 14 are allowable over the combination of Tateishi and Takagi for at least the reasons noted above.

As for each of the dependent claims not particularly discussed above, these claims are also allowable for at least the reasons set forth above regarding their corresponding independent claims, and/or for the further features claimed therein.

Accordingly, withdrawal of the rejection of claims 1-36 under 35 U.S.C. §103(a) is respectfully solicited.

II. CONCLUSION

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Applicants respectfully petition under the provisions of 37 C.F.R. §1.136(a) and §1.17 for a three (3) month extension of time in which to respond to the Examiner's Office Action. The appropriate Extension of Time Fee is attached hereto.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Carolyn T. Baumgardner (Reg. No. 41,345) at (703) 205-8000 **to schedule a Personal Interview**.

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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment from or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17; particularly, the extension of time fees.

Respectfully submitted,

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MKM/CTB/ctb
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Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS SHOWING CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Three Times Amended) A substrate processing apparatus, comprising:

a substrate transfer section;

a plurality of modules, each of said plurality of modules being directly detachably attached to said substrate transfer section; and

a common first substrate transfer device, provided in said substrate transfer section, for transferring substrates into said plurality of modules,

wherein said plurality of modules are piled up adjacent to, but spaced separately from one another in a substantially vertical direction such that said plurality of modules are capable of being attached to and detached from a wall of said substrate transfer section independent of one another,

wherein each of said plurality of modules comprises:

a substrate processing chamber, having a hermetic structure, for processing said substrates;

an intermediate chamber having a hermetic structure and provided between said substrate processing chamber and said substrate transfer section;

a first valve provided between said substrate processing chamber and said intermediate chamber, said first valve capable of establishing hermetic isolation between said substrate processing chamber and said intermediate chamber when closed, and capable of allowing said substrates to pass therethrough when opened; and

a second valve provided between said intermediate chamber and said substrate transfer section, said second valve capable of establishing hermetic isolation between said intermediate chamber and said substrate transfer section when closed, and capable of allowing said substrates to pass therethrough when opened, and

wherein said intermediate chamber is provided with a second substrate transfer device for transferring said substrates to and from said substrate processing chamber.

14. (Three Times Amended) A substrate processing apparatus, comprising:

a substrate transfer section;

a plurality of modules, each of said plurality of modules being directly detachably mounted to said substrate transfer section; and

a common first substrate transfer device, provided in said substrate transfer section, for transferring substrates into said plurality of modules,

wherein said plurality of modules are piled up adjacent to, but spaced separately from one another in a substantially vertical direction such that said plurality of modules are capable of being attached to and detached from said substrate transfer section independent of one another,

wherein said plurality of modules are piled up adjacent to, but spaced separately from one another in a substantially vertical direction such that said plurality of modules are capable of being attached to and detached from a wall of said substrate transfer section independent of one another,

wherein each of said plurality of modules comprises:

a substrate processing chamber, having a hermetic structure, for processing said substrates;

first and second intermediate chambers provided between said substrate processing chamber and said substrate transfer section, each having a hermetic structure, said first intermediate chamber being located closer to said substrate processing chamber than said second intermediate chamber, and said second intermediate chamber being located closer to said substrate transfer section than said first intermediate chamber;

a first valve provided between said substrate processing chamber and said first intermediate chamber, said first valve capable of establishing hermetic isolation between said substrate processing chamber and said first intermediate chamber when closed, and capable of allowing said substrates to pass therethrough when opened;

a second valve provided between said first intermediate chamber and said second intermediate chamber, said second valve capable of establishing hermetic isolation between said first intermediate chamber and said second intermediate chamber when closed, and capable of allowing said substrate or said substrates to pass therethrough when opened; and

a third valve provided between said second intermediate chamber and said substrate transfer section, said third valve capable of establishing hermetic isolation between said second intermediate chamber and said substrate transfer section when closed, and capable of allowing said substrates to pass therethrough when opened,

wherein said second intermediate chamber is provided with a substrate holding device capable of holding said substrates, and

wherein said first intermediate chamber is provided with

a second substrate transfer device capable of transferring said substrates between said substrate holding device and said substrate processing chamber.